

SatFACTS EXTENDED

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Forget the problem - create a NEW solution!

Reviewing: There are 300 million US people living in 100 million homes/apartments/tents/park benches/back seat of abandoned cars ad infinitum. 85 million of these residences have either cable TV or satellite TV leaving 15 million who receive some or all of their TV via OTA (over the air); *antenna connected viewers*. (Cable and satellite viewers do not require doing anything - their service provider performs the conversion and one could therefore draw the conclusion that only the homes that cannot afford cable or satellite are caught in this greed tussle.)

The Bush government created a digital conversion plan based upon \$40 government coupons to go to those homes not connected to cable or satellite. The \$40 was to offset or partially offset the cost (typically US\$50) of acquiring a set-top digital in - analogue out conversion box. Australians can purchase the same thing for as low as Au\$29; in the UK they are even cheaper. The concept was these boxes, connected between the existing TV antenna and the existing analogue-only TV set would allow reception of the digital signals on an old-fashioned analogue receiver. More than 30 million coupons were funded (US\$1.4 billion) and to acquire one required the analogue-only viewer to go to a web site and make application. The cheques arrived in the mail, but had a self-expiring date 90 days after being mailed. Accurate numbers are elusive but it appears at least 4 million of these coupons were not used although at the U.S. Treasury they appeared on the books as 'spent'. Another set of unreliable numbers, which changes daily by 7-digit numbers (suggesting the numbers quoted are at best somebody's fantasy), reports 5.8 million (or 7.2 or 9.4 etc.) homes that should have applied for a coupon have *not bothered* to do so. It was the panic that 5.8 (or whatever) million homes would awake on February 17th and discover their TV stations were no longer broadcasting which caught the attention of the incoming Obama administration. It was a wonderful opportunity to

"Stay tuned..."

It is not merely their economy (and politics) that are "screwed up" - as we noted in Mid-January, *"February 17th is a month away and given their propensity to screw up even a simple concept, the last days of analogue TV in the USA may not be settled yet."*

As we go to press an emergency law allows analogue TV stations, originally scheduled to cease operation February 17th, to linger - until as long as June 12th. Unfortunately, that simplistic extension is but the tip of a serious problem which has created - is promoting - total chaos in the TV transmission and reception world for 300 million Americans. Politics is the cause - an incoming (Obama) administration using the TV transition to throw excrement on the departing Bush group. Take a deep breath and read on.

impress 5.8 million homes with "*Obama cares and Bush did not*" messages.

If only it was that simple.

For 1,800 analogue TV stations to change to digital has been a major effort. And extremely expensive for the TV stations. And they did not receive any 'coupons' for the effort. What they did get - or will get - once this mess is over - is the ability to add one, two, three or even four additional '*programme channels*' to what they radiate - in theory each of these additional *channels* are new opportunities for new revenue (this assumes the TV station receiving this 'bonus' is a commercial station - in fact 12% are non-profit-public that depend upon viewer donations or subsidies from some level of government - like SBS and ABC in Australia).

The first digital TV OTA testing happened nearly a decade ago and slowly, mostly after 2005, stations faced with February 17, 2009 have invested money in 'going digital'. For 99% of these stations, they were forced by

In this issue: America's failed DTV transition - Part Two

Bob Cooper's SatFACTS Extended - February 2009 - page 1

rules to continue telecasting in analogue while slowly bringing their digital service on the air. In other words, two parallel transmitters, one analogue and one digital with only the analogue actually earning revenue at that point. It was a huge up-front investment (the new digital gear) and for those running both formats at once it added numbers like US\$50,000 a month just to maintain analogue and pay the extra electrical bills.

And to this point it remains 'only slightly more complicated' than the original simplistic intent.

The US Senate and the US House both created Obama inspired emergency legislation and the wording was not similar. When this happens, after each chamber votes on and approves a bill, a committee meets to thrash out a compromise bill - one that (1) answers the original call from Obama, (2) does not step on tender toes in the Senate, and, (3) does not infuriate the House. This 'merged' piece of legislation finally passed both houses on February 4 and was rushed to the White House for Obama's signature. He responded by announcing, "*I will allow five days for comment before signing*"; which took us to February 9. Sort of pushing the February 17th existing deadline? Of course. And now all signs of 'simplicity' evaporate into the world of bureaucracy.

The final bill basically left it up to the TV stations to decide whether they would go ahead with long established (and long announced) plans to cease analogue on February 17th - or at some to be determined date in the future but in no case later than June 12th. As of February 4, approximately 200 stations had already switched off their analogue transmitters. The remaining 1,600 had every intent of being off February 17th - not that they had a choice at the time.

Now they had a new opportunity - stay on longer - a decision which seemed simple enough to make - were they willing to continue paying for both analogue and digital for an additional four months and if so, what would the benefits be? Simple enough; yes?

No.

Along comes the Federal Communications Commission bureaucracy which issued a warning - "*we may NOT allow you to shut down February 17th*" (or - "*we may not allow you to continue past February 17th*"). Somewhere out there is the big world of smart people a bureaucrat was crunching numbers and deciding which 'TV markets' were especially slow in making the conversion to digital. They announced, "*You must have our permission to shut-down February 17th*" all in the interest of on-going TV for those people who have ignored the two years of warnings and advice and the \$40 coupon program to date. So a station that REALLY wanted to shut-down analogue on February 17th might not be allowed to do so? You got it. Only on February 11th, as these words are written, no such list of who will be permitted and who will not be allowed to shut-down

"(very) Approximate Numbers"

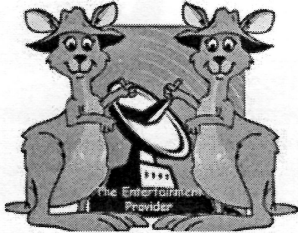
- 1/ Number of US TV stations affected - 1,800
- 2/ Number already off-analogue and on permanent DTV channels - <200
- 3/ Number operating on DTV but using interim/temporary digital channels which they will abandon for permanent channels at end - >1,000
- 4/ Number of stations likely to cease analogue February 17th in favour of new permanent digital channels - unknown but <500 forecast
- 5/ Estimated number of "housing units" still to equip for digital - unknown but possibly 5.8 million
- 6/ Number of "Digital Coupons" issued but never redeemed - unknown but as many as 4 million
- 7/ Gambler's odds all of this will sort out not later than June 12th - 20% (1 in 5)

February 17th has appeared. Those who operate TV stations can elect to 'stay on until June 12th' without FCC permission but to shut down they need special permission. Still, many hundreds are shutting down on February 17th - some without FCC permission (yes, that will start lawsuits) citing the \$50,000 a month to keep their analogue operating for an audience base best measured in single digit percentage points. One station manager in Atlanta went public with, "*Why should we be penalized to the tune of \$50,000 a month because 4% of our audience has not bothered to take advantage of free*

The Language of Transition

'Flash-Cut' - a station will stay on their present analogue channel (although they have been 'testing' DTV on another temporary channel for some years) but "flash to digital". This means their present antenna system can be re-used for digital.

'Temporary Digital Channel' - The entire UHF (channels 14-52 in the USA) band has been repurposed creating interim places for a station to 'test/create' digital in advance of actually moving to a permanent digital channel. The majority of 'temporary channels' will be re-occupied by some other digital station in the final cut. Stations not operating on their permanent digital channel have been forced to invest in temporary transmitters and antennas to satisfy FCC requirements they create a digital service in advance of their permanent channel move. (Yes - there will be an abundance of 'used' low and medium power DTV transmitters [and transmission antennas] available after this all settles down.)



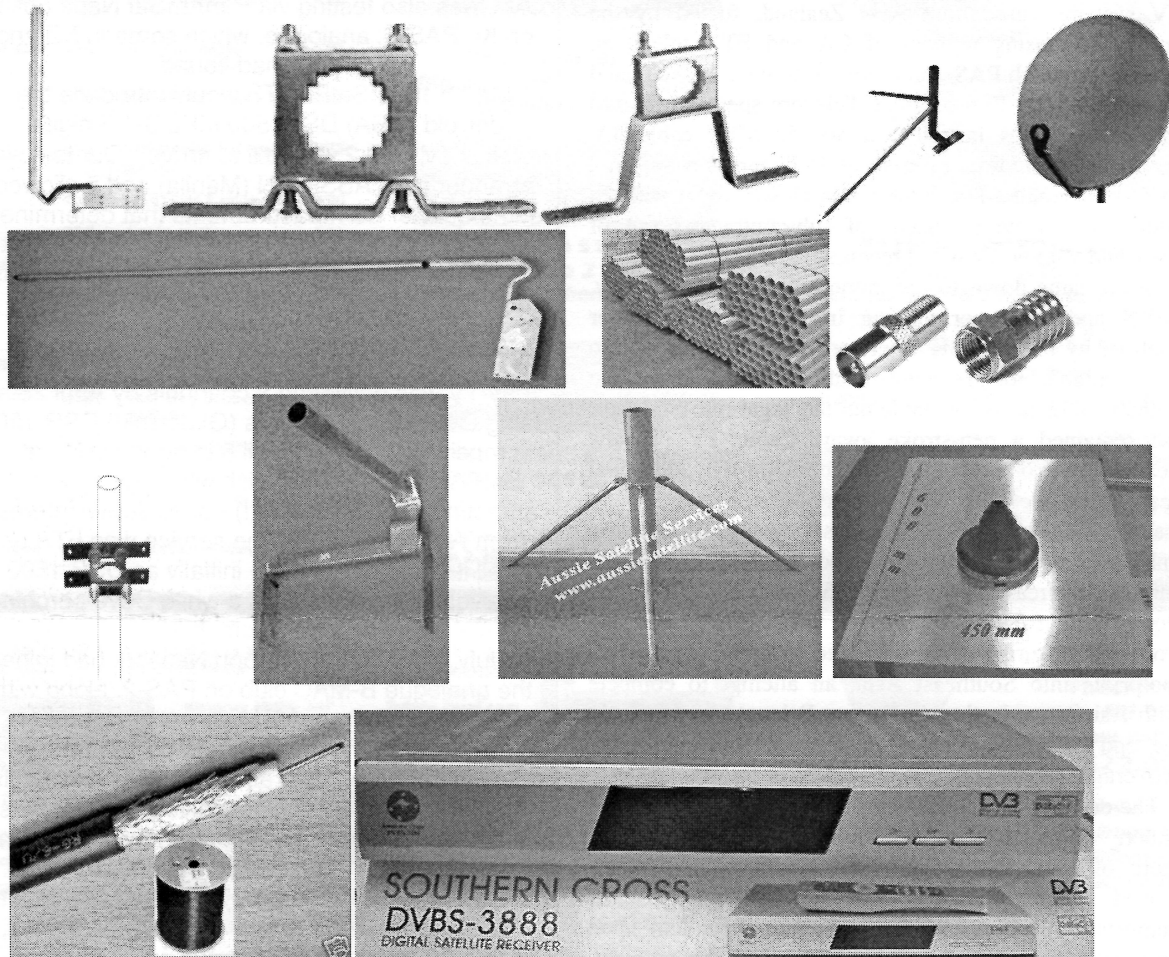
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7 TV stations:
A 2 can "flash cut"

C
 2 channels temporarily conflict with "A" permanent channels

B Still has 7% analogue-only homes; 3 stations conflict with "A" channels

D

The "domino Effect"

1,800 US stations have been operating both analogue and digital channels (two separate spots in the spectrum) for some years. But the vast majority of stations now 'testing' DTV - in advance of turning off their original analogue - are using different channels (frequencies) with the digital than the ultimate DTV-only channel. When analogue eventually ends, there is a GIANT game of channel swapping ahead; more than 1,000 will move to channels presently in use by other stations in their or other nearby cities.

government coupons after two years of being available?"

The coupons. The original 30-million-plus were all gone (given out) back in mid-December and there is a waiting list estimated (as all numbers in this fiasco are estimates) of around 500,000. The original 'Bush Law' creating the coupons allowed 90 days for cashing them in so when 4 million (again, somebody's estimate) did not get back into the banking system they became 'frozen'; in the mind of the treasury bureaucracy they had been 'spent' (the day they were mailed) but somehow never collected. So in fact there are some number (perhaps 4 million - nobody seems to know) past their use-by-date against 400,000 (or who knows for sure how many) standing in line for coupons. In theory, the ones never turned in would more than cover the standing-in-line folks but that would require a new law to deal with. So the answer in the Obama favoured bill is to create a new set of \$40 coupons - on top of the original amount. Again, that seems simplistic.

But the Obama inspired legislation only deals with extending the February 17th date - subject to the intervention of the FCC on a case by case basis. NOW - we need a bill to authorize the money from treasury to pay for the new coupons. And we need new coupons to

be printed and a new bureaucracy created to process applications for the new coupons.

They say 'March or April' before this will happen which means from February 17th *until* whenever the new money is available and the new coupons are available nothing will happen to get those 5.8 million (or whatever the REAL number is) of laggard homes into the digital world. And that is the underlying reasoning (if 'reasoning' is the correct word) behind allowing stations to continue their analogue services until June 12th. It will take at least that long for the bureaucracy that must support the new coupons to get into gear. But hold on - it gets better!

The STBs are Chinese and the Asian source had done their planning based upon all boxes being distributed by December. So the box sources have, from October onward, been slowly (and then more rapidly) 'ramping down' production of STBs. Right now, today, there are no new boxes being produced and the Chinese sources are saying things like "We have no idea how many more to make - or when to start making them." Logical. Their market was supposed to dry up, go away, late in 2008 and now along comes the American politicians who think they can restart the process on VERY short notice. There is no accurate indication of how long it might be before the Chinese are once again shipping boatloads of STBs to America but nobody really expects to see them much before April or May (which may work just fine since the coupons won't be in distribution until then anyhow!). It should be pointed out the American STB is not like any other country's STBs - you can't simply divert unsold American units to Australia or Austria; they won't work there.

Okay - so they have a mess. Alas, we have barely scratched the surface! Now we try to understand the FCC's mishandling of allowing certain stations in specific cities to either leave analogue February 17th or be forced (such as the example station in Atlanta) to stay on the air past that date. It is all about the 'domino effect'.

Let's say we have four cities we will identify as "A", "B", "C" and "D". The distance from A to B is 100 miles, from A to C 75 miles, and from A to D 200 miles. We'll overlook how far it might be from B to C or B to D etc.

The stations in "A" are all prepared to turn off their analogue on February 17th and millions of dollars have been spent to allow that to happen. So too those in B, C and D. But the FCC comes along and determines in their wisdom that 'B still has 7% of the homes who are not digital ready' so all of the TV stations in B are being told "you must remain on the air in analogue until June 12th."

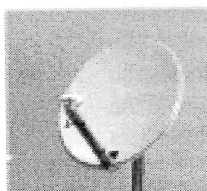
This is going to become much more complicated than the following 'what if' but here is a starting point.

Phoenix Technology Group

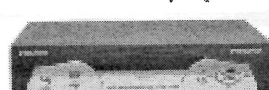
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LNB \$24/each
for box of 24



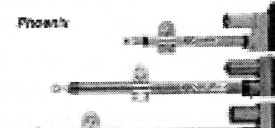
H-H Motor \$85ea



SuperJack EZ2000
Positioner \$5/each



Star V Box II
DISEqC 1.2 Positioner
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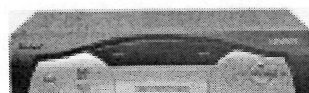
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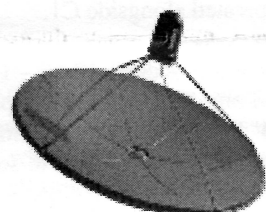


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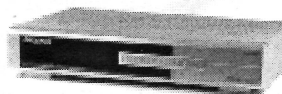


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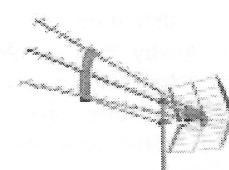


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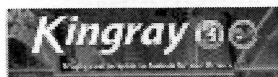
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One station's view: WTRF (Wheeling, West Virginia)

"Congress is permitting television stations across the country to delay the end of analog broadcasting until June. But WTRF will not be among them; WTRF will make the digital switch on February 17th.

"Chief Engineer Brad Stanford says all three networks of channel seven will be broadcast solely in the digital format at midnight, February 17th. Stanford says, 'our feeling is it would be beneficial to our viewers now that we've told them for the past six months that we are going to a transition on February 17th; and we will abide by that.'

"Stanford says 'there will be more confusion if we don't do this'. He himself will throw the switch at 11:59pm on the 17th. Stanford says, 'viewers who are ready for the transition will see their screens go dark for only about 15 seconds'. He believes sticking with the original deadline is the best choice."

Of the seven TV stations in "A", two will "flash cut" from their present analogue channels to use the same channel for digital. And that leaves five other stations in "A". Three of these are using temporary DTV 'test channels' today but on February 17th they were scheduled to move to new, permanent digital channels. Alas, each of these three stations are to move to a permanent channel which is today in use in "B" for analogue transmission. If "B" stations are being told they must continue to operate their analogue until June 12th, none of these three "A" stations can move to their new, permanent digital channels - until B stations give up their analogue operation. So now we have 3 stations in "A" which are forced to continue their analogue even though they are ready to move to the new permanent digital channels (and turn off their present temporary digital channels).

Meanwhile there are two more analogue channels in "A" which are using temporary channels for DTV and will be using permanently channels which are presently in use in "C" for C's own temporary DTV operations. But "C" and "D" have conflicts with "E" and "F" and only a few of the TV stations in "C" can move to their permanently assigned channels - leaving the two channels in "A" using their temporary DTV channels until June 12th. These two channels can turn off their existing analogue channels on February 17th but they cannot move to their new permanent channels - yet.

The domino effect; more than 1,000 stations are locked into a grid pattern which involves one or two or a dozen or fifty other stations scattered across the country side like a row of dominoes.

And it does not take the FCC to create this havoc - under the February 4 legislation individual stations have only one "easy option" - and that is to remain on the air with their analogue just as they have for decades, until June 12th. Any other choice introduces the crumbling row of dominoes where even one station in the 'chain' being stubborn and staying on analogue until June 12th - or being ordered to do so by a bureaucracy - can stop anything approaching a large scale switch over to digital-only.

Pogo said it so well: "*I have met the enemy and it is me.*"

Summary

How do you put a 'disaster' into summary-form? In the very sad and heart-breaking case of Australia's recent (and continuing as these words are written) 'bush fires' you quote numbers - number of people dead, number of homes destroyed, hectares burnt to a crisp. In the case of America's digital-TV-transition the numbers are so suspect they cannot be believed. This activity has, sadly, been managed very poorly (yes - that is an editorial 'opinion'). But the good side of this is that Australia, New Zealand, even Fiji and PNG can profit from their mistakes.

Asian firms manufacturing analogue-only TV receivers are at the end of that practice; with countries such as the US, UK, Sweden, Germany (to name but a few) doing the digital transition, the consumer market for analogue-only TV receivers is downsizing by the day. There are transition sets now being built (they receive either analogue or digital) but like the analogue onlys - the days are numbered. Several name-brand sources (Mitsubishi for example) have already ceased production of anything analogue for TV sets. Others will do so - many in 2009 - with scant advance notice.

So our forecast: If you are reading this in a non-digital country (Fiji comes to mind) expect not only name brand analogue (or analogue + digital) consumer sets to first become harder to source and then more expensive - *much more expensive*. Have you attempted to locate a VHS tape (only) VCR recently? Learn from that frustration - and stock up on the increasingly difficult to locate 240 tapes while you have the chance. The most basic law of economics is at work here - when the volume goes down, the price goes up or the object simply disappears from the market.

The original concept for digital was "more, better" with the bonus of freeing up from TV broadcasting significant amounts of megahertz spectrum space - to be assigned ("sold" is the proper word) to other users. The PR attached to this side of the transition usually begins with mentioning "*more radio frequencies for first-line-responders*" which of course makes it OK to earn billions from the commercial firms who have pizzas to deliver. Give it ten years and we'll see how it sorts out!

Update: Pacific Satellite Operations

Scheduled launches: NSS-9 scheduled to replace NSS-5 (177W) with 44 zoned C-band transponder coverage patterns is delayed (was February 9). Protostar-2, to replace badly ailing Cakrawarta at 107.7E, scheduled for (very) late April - more likely May; 12 Ku (reported for India) and 10 S-band. Also on same flight, Measat 3A to 91.5E with 12Ku and 12C, to co-locate with Measat 3.

Intelsat 8/166E: "An extensive (FTA to start) European package now on 12.726H (Sr 28.066, 3/4) which is Australian beam." (Carlisle)

Optus C1/156E: "Late in January 'A-PAC' (Australia's Public Affairs Channel) began on T8/12.607V (27.800, 3/4 at V4111, A4222. Prior to launch the EPG read 'Australia's Public Affairs Channel will bring you complete coverage of discussion, debate and democracy from around Australia and the world'. America's C-SPAN channel, with a similar mission and dating back to the 1980s, is run overnight quite often while daytimes is largely Australian product 'produced by SKY News as a service to all Australians.'" (AI, Qld) "Aurora's 'INFO 156E' channel' (12.407V, 30.000, 2/3) has finally replaced the advert for broadband 'which expires March 31, 2008'. The new advert is for two versions of their satellite phone. An aside - Optus appears to be changing the keys in their version 1 cards on a more or less monthly basis." (NS, Victoria)

Optus D2/152E: "12.706V, 22.500, 3/4 now has 3 unused channels (2 TV, 1 radio); 3ABN (TV and radio) have both moved to 12.545V. UBI has now inverted the signal on 12.608H (22.500, 3/4) which is mostly Latino channels but also contains FTAs ERT, Kurdistan TV and SCTV (community TV); 12.394H, 12.421H and 12.707H have always been inverted." (IF, Qld.)

Optus D3/156E: No new information.

Soapbox: "NEWS Corp has announced a US\$9 billion loss in the last quarter." (IF, Qld.) "SBS digital terrestrial which has been 576p is now always 720p which is also what the ABC does. On 29 January SBS changed its LCN (logical channel numbers), channel labels and PIDs. Out of ten TVs I watch over, only one attempted to automatically accept the changes (a 50" Philips moved the SBS HD channel from 30 to 359!). Some models have a 'channel update' software routine - which would not function properly on any of the TVs; each required a complete new reload. Originally there were 4 TV and 2 radio and now there are 5 TV and 2 radio." (AI, NSW) "The American digital transition fiasco is so bad the FCC has formally asked the amateur radio (Ham) trade group ARRL to 'volunteer members' to go around and help an estimated 4 to 6 million US homes properly install and set-up new STB boxes. The hams declined." (Jerry T.) "Tony Dunnett reports IS5, D1 and D2 can be done (IS5 on C-band) with a simplistic 1m

Lenoxx STB Model STB950

This STB is supplied with a 12V plugpack and a car cigarette-lighter lead. It was tested on a bench power supply and I was amazed at how little power it consumes. I cross-checked with a variety of multimeters to verify the measurements. The socket on the STB is simply labelled '12V' but I found in 16V it consumes the same amount of power as at 12V. The minimum is around 7.5V (below 7V the reception becomes unreliable). The STB when tuned to a TV channel consumes 3.4 watts and in standby 1.9 watts. Recording to a USB Flashdrive is also 3.8 watts as is playback from the drive. The recorded quality surpasses S-VHS and may approach a DVD. The STB will also play JPEG and MP3 files which means for (Au)\$99.95 it seems good value. I have also found it works with a USB multi-card reader and suspect it might work with a 4-way USB hub. It loads an SD card as drive E, a USB Flash Drive as "A" so perhaps with a hub, extra USB devices can be loaded as "B", "C" and "D". It is possible it would work with a portable hard-disk-drive running from a plugpack.

(IF, Qld.)

dish in New Zealand." (CS) "NHK has joined the group creating 24 x 7 English language news and features (like RT, France 24, BBC and so on). The object is 'to promote the Japanese culture overseas'; this replaces the former NHK English service we have all spent a decade-plus ignoring." (NS, Vic.) "HDTV? 720p? Sky NZ has launched Sky Sport 1 and Sky Movies on 12.331H using DVB-S2 as well as Sky Sport 2, Sky Movies Greats and TV3 on 12.358H." (Simon) "Australia is using Mildura (Sunraysia) in NW Victoria as a pilot location to push for the analogue to digital transition promising unspecified government assistance (including free STBs for pensioners) as well as 'a new satellite service to extend access to digital TV'. Their target is 2010 to turn off analogue service in the area and nearly (Au)\$14 million will be spent on the pilot project. Could this be the next step for Aurora?" (Kenneth G.) "The Mildura project is expected to cost government \$225 per person which when expanded to all of Australia works out to (Au) \$4.5 billion. There are 60,000 people in the identified region." (IF, Qld) "Oldest still functional TV satellite? Ekran serving India and adjacent areas on UHF channels (714 and 754 MHz) still going after 34 years!" (Roger B, UK) "Freeview NZ claims 52,522 HD-class TV receivers in Kiwi homes and 198,938 STBs (DTH and terrestrial total) which a spokesman for TVNZ assures us indicates 12.6% of NZ homes are 'connected'. HD competitor Sky claims they will reach 80,000 homes with MySky HDi boxes in August." (Brian, Auckland)

The top image shows the front of the Trion SRT-099 receiver. It features a black faceplate with the Trion logo in the center, the model number 'SRT-099' on the right, and various certification logos (FCC, CE, etc.) on the left. The bottom image shows the rear of the receiver, which is densely packed with connectors. On the left, there are inputs for 'LINE IN/OUT', 'FM/AM IN', 'FM/AM OUT', and 'FM/AM'. In the center, there are inputs for 'VIDEO', 'AUDIO', and 'VIDEO'. On the right, there are inputs for 'VIDEO', 'AUDIO', and 'VIDEO'. At the bottom right, there is a large circular fan grille and a label with the model number 'N11775'.

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- With a **139**-year history,
- **20**-year Set-Top-Box experience,
- Subsidiaries in **16** countries,
- Distribution on **5** continents,
- our brand is



STRONG

not just by name

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